

ABSTRACT OF THE DISCLOSURE

Low-k ILDs are protected from degradation during damascene processing by depositing a thin, conformal silicon carbide liner with a silicon-rich surface before barrier metal layer deposition. Embodiments include forming a dual damascene opening in porous low-k dielectric layers, depositing a
5 thin silicon carbide liner with a silicon-rich surface lining the opening, depositing a barrier metal layer, such as a Ta/TaN composite, and filling the opening with Cu.